INSTRUCTIONS FOR P3 FINAL REPORT

DUE TUESDAY, APRIL 12, 2005 BY 4 P.M.

Send your final report by overnight mail to:

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BACKGROUND

The P3 Student Design Competition was created to allow student teams from across the U.S. address technical design problems from the perspective of sustainability. The sixty-six projects that are being conducted by the student design teams will convene on May 16 and 17, 2005, on the National Mall to allow for a showcase of the projects' results. The teams will be expected to prepare a report to allow the National Academy of Engineering to judge the projects and select those that will receive additional funding to support further development or implementation.

EPA anticipates selecting six (6) P3 Award winners that will be eligible for Phase II funding up to $75,000 including direct and indirect costs depending on the availability of funds. Proposals exceeding this amount ($75,000) will not be considered. The total Phase II project period for an application submitted in response to this Request for Applications (RFA) may not exceed one (1) year.

The P3 Award final report will serve two purposes: 1) a description of the team's achievements with respect to the stated project purposes and objectives and 2) a proposal for Phase II funding detailing development and implementation strategies.

The final report from the design teams will need to communicate progress that has been made toward the project goals. Since the P3 program recognizes the importance of the process of design as well as the outcome – some of the criteria will be based on how the work proceeded as well as the ultimate conclusions that were reached by the design team.

REQUIREMENTS

- STANDARD FORM 424 (available at http://www.epa.gov/ncer/P3/forms)

The applicant must complete SF 424. This form will be the first page of the application. Instructions for completion of the SF 424 are included with the form. The form must contain the original signature of an authorized representative of the applying institution. Please note that both the Principal Investigator and an administrative contact are to be identified in Section 5 of the SF 424.

Regarding Block 16 of the SF 424: research funded under this program may be eligible under E.O. 12372, "Intergovernmental Review of Federal Programs," if it affects public health or if an environmental impact statement is required. If applicable, an applicant should consult the office or official designated as the single point of contact in his or her State for more information on the process the State requires to be followed in applying for assistance, if the State has selected the program for review.

- KEY CONTACTS (available at http://www.epa.gov/ncer/P3/forms)

The applicant must complete the Key Contacts Form (NCER Form 1) as the second page of the application. A copy of this form should also be completed for major sub-agreements (contacts at the institutions of primary co-investigators). Please make certain that all contact information is accurate. An email will be sent by NCER (from receipt.application@epa.gov; e-mails to this address are not accepted) to the Principal Investigator (with a copy to the Administrative Contact) to acknowledge receipt of the application and to transmit other important information. If an e-mail acknowledgment has not been received within thirty (30) days of the submission deadline, then immediately contact the project officer listed under "Technical Contacts" in this solicitation. **Please note:** Due to often lengthy delays in delivery, it is especially important that you monitor NCER confirmation of receipt of your application when using regular mail.

- EXECUTIVE SUMMARY (3-5 PAGES)

This will be placed on the EPA/P3 Homepage along with a list of publications, if any, that have resulted from the P3 project. The summary should be submitted in the following format:

NCER Assistance Agreement Final Report Executive Summary

Date of Final Report:
EPA Agreement Number: SU831###
Project Title:
Faculty Advisor(s), Departments, and Institutions:
Student Team Members, Departments, and Institutions:

Project Period:
Description and Objective of Research:
Summary of Findings:
Conclusions:
Proposed Phase II objectives and strategies:
Publications/Presentations:
Supplemental Keywords:
Relevant Web Sites:

- FINAL REPORT

The final report should not exceed fifteen (15) consecutively numbered (bottom center), 8.5x11-inch pages of single-spaced, standard 12-point type with 1-inch margins.

This report should include the following sections:

Summary of Phase I (8 - 10 pages)

In a final report summary of Phase I, P3 teams must provide a comprehensive overview of their research objectives and results, as well as publications and presentations, in language that would be understood by the educated public. P3 teams should describe conclusions and implications for further research, development, or implementation. P3 teams are also encouraged to provide website links to their publications or related research efforts.

1. **Background and problem definition**
    - Relationship to people, prosperity, and the planet
    - Relevance and significance to developing or developed world
    - Implementation of the P3 Award project as an educational tool
2. **Purpose, objectives, scope**
3. **Data, results, findings**
4. **Discussion, conclusions, recommendations**
    - Streamlined life cycle costing and analysis, if appropriate
    - Quantifiable benefits to people, prosperity, and the planet (estimated or actual)
    - Qualitative benefits to people, prosperity, and the planet
5. **References**

Sections 3 and 4 should primarily focus on:

I. Did the project balance the elements of people, prosperity, and the planet?
II. Was the project successful? (Remember: you defined success for your project in your original proposal.) If so, what was crucial to achieving success? If not, what were the critical barriers and

impediments? If you were going to repeat the same project, what would you do differently?

III. Did all disciplines represented by the team members contribute in a substantive and constructive manner?

IV. Does the project have potential to bring about positive impacts in the movement toward sustainability?

V. Are the potential impacts broadly applicable and transferable to various industry sectors or various situations in both the developed and developing world or did the project have a significant impact within a given process or context?

VI. How many external partners were involved on the project? How much external funding was leveraged for the project?

VII. Can the project's impacts be quantified in terms of reduced environmental impact (water, waste, toxic emissions, etc) and/or in terms of improved environmental health (reduced probability of illness)? ***If so, what are the quantifiable benefits (i.e. reduction of X lbs. of emissions, reduced incidence rate of X cancer cases per 100,000 people, etc.)?***

VIII. Was the project focused on original discoveries or an adaptation of existing knowledge to result in innovative approaches?

Each of the above questions should be answered in the report in the form of a short narrative. **NOTE: It is important that in addressing any of the above questions, wherever possible, the report should provide quantitative data to more completely describe how the criterion has been addressed. It is appropriate and acceptable for the quantified benefits to be projected or likely as long as the implementation assumptions are clearly identified.**

Proposal for Phase II (5 - 7 pages)

Applications should be focused on a limited number of research objectives that can be adequately and clearly demonstrated to meet the RFA requirements. Explicitly state how Phase II will build on the success achieved in Phase I. Detail the methods and approaches that will be used to further the design in terms of development of implementation.

The Phase II portion of the P3 final report must provide the following information:

1. P3 Phase II Project Description

Address the review criteria (see Application Review Information section). Include the criteria subheadings ("Challenge Definition and Relationship to Phase I", "Innovation and Technical Merit", "P3 (Sustainability)", "Measurable Results, Evaluation Method, and Implementation Strategy", and "Educational Tool").

2. Project Schedule

Show significant steps and milestones in the project. Clearly depict the project's duration and include key milestones and project tasks building on the timeline from research to design (Phase I) through to development to implementation (Phase II). Indicate anticipated role and tasks of each team member or department represented. Also, indicate anticipated interactions with any and all partners (see 3 below), if applicable.

3. Partnerships (if applicable) Note: This description does not count towards the five - seven (5-7) page limit.

Partnerships are strongly encouraged and are considered particularly important for the implementation strategies.

Formal partnerships should be established prior to submitting the final report. As such, detail any and all partnerships established for the purposes of competing for the P3 Award including the type of partner (educational institution, industry and/or NGOs), matching contributions (funding and/or in-kind) provided by the partner, the nature of the partnership, and the role of the partner in the project.

Formal letters of understanding or commitment including anticipated support for Phase II of the project from any and all partners should be submitted in support of the application, when available and appropriate.

4. Important Attachments:

References cited are in addition to the fifteen-page limit for the final report.

Letters of intention or understanding detailing commitment or support should be included and are in addition to the fifteen-page limit for the final report.

- BUDGET AND BUDGET JUSTIFICATION

EPA anticipates funding six (6) Phase II projects at a level up to $75,000 for one year dependent on the availability of funds. Proposals with budgets exceeding the award limit will not be considered.

Prepare a budget table using the guidance and format found at http://www.epa.gov/ncer/P3/forms/.

If a sub-agreement, such as a subcontract, is included in the application, provide a separate budget for the sub-agreement in the same format. Include the total amount for the sub-agreement under "Contracts" in the master budget. Any project containing sub-agreements that constitute more than 40% of the total direct cost of the grant will be subject to special review. Additional justification for

use of such a subcontract must be provided, discussing the need for this agreement to accomplish the objectives of the research project.

Please note that institutional cost-sharing is not required. However, if you intend to cost-share, a brief statement concerning cost-sharing should be added to the budget justification, and estimated dollar amounts must be included in the appropriate categories in the budget table.

Describe the basis for calculating the personnel, fringe benefits, travel, equipment, supplies, contractual support, and other costs identified in the itemized budget and explain the basis for their calculation. (Special attention should be given to explaining the “travel,” “equipment,” and “other” categories.) The budget justification should not exceed two consecutively numbered (bottom center), 8.5x11-inch pages of single-spaced, standard 12-point type with 1-inch margins.

Budget information should be supported at the level of detail described below.

1. Personnel – not eligible under this solicitation
2. Fringe Benefits – not eligible under this solicitation
3. Travel – Specify the estimated number of trips and locations, and other costs for each type of travel. Explain the need for any travel outside the United States.
4. Equipment - Identify computers and each item to be purchased with an estimated cost of $5,000 or more per unit and a useful life of more than one year. (Items with a unit cost of less than $5,000 are considered supplies.)
5. Supplies - “Supplies” mean all tangible property other than “equipment.” Identify categories of supplies to be procured (e.g., laboratory supplies or office supplies).
6. Contractual - Identify each proposed sub-agreement (grant or contract) and specify its purpose and estimated cost.
7. Other - List each item in sufficient detail for the EPA to determine the reasonableness of its cost relative to the research to be undertaken.
8. Indirect Charges - If indirect charges are included in the budget, indicate the approved rate and base with an explanation of how indirect costs were calculated.

- RESUMES

Provide the resumes of all principal investigators and important co-workers. The resume for each individual must not exceed two consecutively numbered (bottom center), 8.5x11-inch pages of single-spaced, standard 12-point type with 1-inch margins.

- GUIDELINES, LIMITATIONS, AND ADDITIONAL REQUIREMENTS

Confidentiality
By submitting an application in response to this solicitation, the applicant grants EPA permission to make limited disclosures of the application to technical reviewers both within and outside the Agency for the express purpose of assisting the Agency with evaluating the application. Information from a pending or unsuccessful application will be kept confidential to the fullest extent allowed under law; information from a successful application may be publicly disclosed.

CRITERIA

Reviewers will be asked to assess which P3 Phase I projects and Phase II proposals are the most meritorious. The following criteria will be used in descending order of importance and relevance. The summary of Phase I and the proposal for Phase II will be weighted equally for purpose of identifying P3 Award winners.

Note: This order is not the same as the required order for the final report.

I. Relationship of Challenge to Sustainability (people, prosperity, and the planet)

Does the proposed follow on work for Phase II of the ***P3 Award*** integrate and sustain environmental protection, economic prosperity, and social benefit across scales in the developing and/or developed world? Does the proposal address how future generations will be affected by the proposed design?

People: Do the proposed environmental and economic outcomes benefit society? Does the proposed project meet the needs of the intended end user and is it affordable (either in the developing or developed world)? If the design is intended for the developing world, does it provide for basic needs such as food, water, shelter, energy, health care, education, and/or transportation? If it is intended for the developed world, does it use energy and material resources effectively and efficiently through the life cycle while reducing hazards to human health and the environment?

Prosperity: Does the cost-benefit analysis consider both short-term (i.e., capital costs for implementation) and long-term (i.e., operation and maintenance) needs? Does the design promote prosperity across scales and directly benefit the local, regional, national, and/or world economy?

Planet: In general, will the design reduce impacts on the environment and human health, diminish resource consumption, and/or directly benefit the environment? Does the proposal demonstrate: (1) That design implementation will not exhaust or degrade the local environment or shift the environmental impacts to another

locality? (2) That the proposed project is less damaging or more beneficial to the health of natural systems than the traditional design?
Multidisciplinary approaches to impact areas (i.e., air, land, and water as well as ecosystem and human health) are encouraged.

II. Challenge Definition and Relationship to Phase I
Is the technical challenge defined in terms that are relevant and significant in the developing and/or developed world and directly related to sustainability? Is the scope of the project clearly and accurately described? Are project characteristics, opportunities, and limitations described? Was Phase I of the project successful? How does this build on the successes in Phase I? What are the lessons learned from Phase I and how will they be applied in Phase II? How will Phase II advance and improve progress in Phase I?

III. Innovation and Technical Merit
Is the design novel? Is the design interdisciplinary? Does it aim to move beyond optimization by creating new approaches to development and implementation of science and technology for sustainability? Does the concept address feasibility of the design, demonstrate scientific/technical soundness, and analyze trade-offs in the design approach? Are the proposed approach and suggested materials adequate and appropriate for the designated location in the developing or developed world? What is the likelihood of success for the work proposed in Phase II?

IV. Measurable Results, Evaluation Method, and Implementation Strategy
Can the goals and objectives for Phase II be determined and achieved? If implemented, are the potential realized benefits described in terms of people, prosperity, and the planet? Are the methods to quantify the benefits of implementation applicable, effective, and appropriate? How is “success” defined relative to the design and implementation? Is the proposed strategy for moving the design from research to development (Phase I) to implementation (Phase II) adequate and realistic? Have the necessary partnerships been developed? Is the design effective, transferable, replicable, and applicable across situations and contexts to the extent appropriate?

V. Integration of P3 Concepts as an Educational Tool
Was Phase I of the P3 project successfully implemented as an educational tool? Will the proposed plans for Phase II maximize the educational benefits of the competition for the ***P3 Award***? Are the research, development, and strategic planning for the competition integrated into core courses and/or elective courses or is the competition implemented as an extracurricular, student chapter, or club activity? Will student awareness be increased in terms of the impacts of their designs on people, prosperity, and the planet?